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9 March 1951

Plans

MEMORANDUM FOR: Chief, Medical Staff

FROM: Chief, Program Coordination Division

SUBJECT: Requirements of Intermediary and Allied Points

Each one of the four or five Collecting Points should have a sufficient quantity of mobile radiation equipment to serve effectively in its specific area in the event of an atomic explosion. It is essential that persons assigned to these areas be familiar with the operation and accurate interpretation of results and readings of these instruments. It is anticipated in this problem that for security reasons the present Civilian Defense Program should not have access to the buildings of this Agency.

1. To protect the personnel against secondary irradiation in the event of an underwater or ground burst, it is suggested that each person assigned to that particular area be supplied with the following clothing:

a. Coveralls worn over ordinary uniforms. These could be washed or destroyed if badly contaminated.

b. If there is any chance that the worker would become contaminated in a washing-down operation, rubber suits which cover the entire body would be necessary. These rubber uniforms (\$10.39) could be decontaminated and reused.

c. Footgear of heavy canvas which slip over the shoes should be provided for workers in a contaminated area.

d. Rubber gloves for ordinary use. Hard leather gloves for rough work.

e. Headgear should consist of a tight-fitting cap made of pliable material covering the entire hair bearing area of the head.

f. Respirators, masks covering the nose and mouth of the type developed as a protection against chemical warfare agents, are satisfactory in preventing the inhalation of radioactive dust particles. If the amount of dust is very high, it will be necessary to supply the worker with a respirator hood (included in uniform "b" above).

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2. Monitoring Instruments

These may be divided into two main groups

- A. Portable
- B. Fixed

A. Portable

Each person acting out of the Control Point should be supplied with two (2) Personnel Pocket Chambers (f 9.17)
two (2) Pocket Dosimeters (f 9.18)
one (1) Quartz-fiber Survey Meter for B G radiation to be used as a secondary standard (f 9.19)
one (1) Area Survey Meter A B G radiation (f 9.20B)
one (1) Area Survey Meter A only (f 9.24A)
two (2) Film Badges f (9.32)

Each group of four (4) persons working out of the Control Point would be supplied with a jeep or ambulance and a sufficient number of batteries to recharge electrosopes and replace worn batteries for the survey meters and carry on board developing solution for portable film badge service. Each Control Point should maintain a reserve pool of the above instruments as well as Area Survey Meters 9.29, 9.31.

B. Fixed Type

The Control Point should be equipped with one fixed type of Geiger Counter as well as at least one of the aforementioned portable counters. This Control Point could be supplied with tractor trailer, with extra uniforms, whole blood, plasma, antibiotics and other drugs.

3. In the consideration of a site as a possible decontamination center, from the health physics viewpoint there are several features which must be considered:

- a. Location with respect to headquarters
- b. " " " " available highways
- c. " " " " airport
- d. " " " " railroad
- e. " " " " water supply
- f. " " " " sewage disposal
- g. " " " " geological strata
- h. " " " " distance from curiosity seekers.

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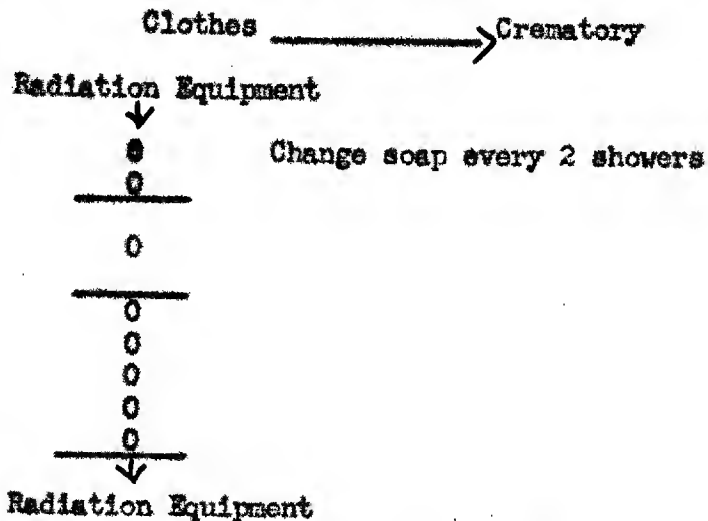
4. This is the site that will receive many of the first casualties and "hot" * material. This site will contain:

- a. Decontamination shower room
- b. Shock ward
- c. Burn ward
- d. Radiation sickness ward
- e. Operating Room
- f. Non-Casualty ward
- g. Morgue
- h. Crematory
- i. Laundry
- j. Laboratory

* Radioactive

a. Decontamination Shower Room

A series of no less than eight consecutive stand-up showers connected so that a person may enter at one end, deposit clothes



and he may leave after a thorough radiation check. This, of course, precludes that he is a non-casualty. He next reports to the laboratory for a base line blood picture and base line urinalysis. These are tagged on his card which carries the date, name, address, radiation dose, location with respect to ground "o", medication given, etc.

Bodies which are still contaminated and may arrive at this point will be kept in a morgue and this station should have space for at least 4 - 5 bodies. Since there is no point in making an effort to decontaminate a body at this time, the

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morgue should be so designed as to protect the other workers from possible harmful radiation. When other casualties have been secured, the bodies should be serviced with radiation equipment to determine whether a cadaver should be decontaminated and released for conventional burial, or cremated at the decontamination station.

Upon entering the decontamination room both the very few casualties and non-casualties who have been exposed to radiological contamination should be passed through the previously described shower system. This system should be wide enough to permit the passage of a litter and a monitor in the event that the patient could not decontaminate himself.

At the point of entrance, all clothing showing any evidence of contamination should be removed. All eyeglasses showing any evidence of contamination should also be removed. This includes wrist watches, personal effects, false teeth, partial plates, artificial limbs, etc. These may be placed in storage vaults, where they might lose their radioactivity over a given length of time, or decontaminate by soap and water or other methods. It might be more expedient in some cases, i.e., clothing, to destroy them.

While in the decontamination showers, the individual will use at least eight changes of soap and pass through at least eight series of shower sprays in a straight line. The soap and water routine is an excellent method for removal of most every form of radiological contamination.

Upon leaving the decontamination shower, the patient is surveyed by a member of the monitor team, and given a new set of clothes, etc.

In the case of a casualty, all contaminated splints, dressings and gear should be removed upon entering the decontamination shower, and these would be reissued at the point of exit.

The disposal of the water in this room is very important. The drains should be so constructed that the contaminated waste may be properly monitored to ascertain their potency. Research workers will set aside "hot" waste in properly labeled containers (oil drums, etc) and limit the amount of radioactive material they pour down the drains to empty into Creek X that empties into Y body of water.

Water from the showers first passes into the hold-up tanks where automatic equipment collects a continuous sample.

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If tests show long-lived radioactivity, the contents of the hold-up tanks is pumped into tanks for permanent storage. When the samples fare within set limits, the water is released from the hold-up tanks into the sewer system at a certain rate of flow. This water should be tested at least twice before it is dumped into uncontrolled system of drainage namely Creek X.

(1) At a pool where sewage is subjected to a standard bacterial treatment which precipitates out some of the radioactive contamination.

(2) Sand filter beds which will catch still another fraction of the contamination.

The water is again monitored, chlorinated and dumped into Creek X.

b. Crematory

The term herein used will be used synonymously to include the disposal by fire of expendable equipment and bodies which are considered too "hot" to bury by conventional methods.

This building should be of concrete construction with one oven similar to those in operation in conventional crematories.

The reason for this size is that large bulky expendable material may be burned in large quantities.

The stack gasses from these crematories must be monitored before they can be distributed into the atmosphere. These operations would necessarily be coordinated with meteorological conditions. For example when weather conditions would cause radioactive materials to be deposited on the surrounding countryside operations must be discontinued in the crematory.

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Native animals in Area D are cattle, rabbits, foxes, dogs and cats. Our own supply of rats, rabbits and guinea pigs could be placed at various concentric levels away from the stacks to check the amount of animal contamination.

In addition to the above washing of gasses, the amount of airial contamination can be drastically reduced by longer "aging" of the "hot" equipment.

The decontamination shower room could be used for the second wave of contaminated vital records, etc.

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In some instances, wet sand blasting devices must be used on file cabinets; in some instances chemical decontamination; in other cases decontamination by blow torch.

The water and chemical waste in this operation would be handled in the aforementioned paragraphs.

c. Shock Ward, Burn Ward and Non-Casualty Ward

The shock ward, the burn ward and the non-casualty ward could be confined to one room comprising 15 to 20 beds. It is not anticipated that this secondary station would be used for burns, trauma, etc. However, it is felt that some floor space similar to the above area could be used for the treatment of secondary radiation sickness until the patient could be transferred to civilian care.

d. Blood Bank

Located in this secondary point there should be a blood bank to supply only in the case of an emergency radiation sickness at that secondary point and to serve as a distributing center for whole blood or plasma for the four collecting points.

e. Laboratory Services

In the operation of this secondary decontamination point, it is felt that the laboratory services be sufficiently limited to satisfy only the bare essentials of service consisting of a microscope blood counting equipment and a urinalysis system. This kind of a laboratory could best be handled by a trained technician.

f. Laundry

The laundry should be supplied with standard laundry equipment for washing clothes of workers in the area and should have proper monitoring equipment to survey the articles of clothing, etc., before and after cleaning. The sewage disposal problem here would be essentially the same as described under the description of the decontamination shower room.

g. Refuge Point

It is assumed that none of the personnel or equipment at this point will be contaminated with radioactive material.

Both the people here and the equipment will have been monitored at either one of the five collecting points and sent directly to the refuge or will have passed through the decontamination point en route.


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It is proposed that a 15-20 bed infirmary be situated here, not only to serve in the case of an atomic disaster, but to give



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In addition to the standard health room facilities and the 15-20 beds, a stock pile of monitor instruments (see list), antibiotics (see list), plasma, whole blood (see list) and routine medications should be in a drug room or pharmacy.

It is not anticipated that the sewage disposal will offer any problem here because of the decontaminated nature of personnel and equipment. The laundry will be a "cold" laundry and the disposal of its waste will offer no problem.

h. Laboratory

The laboratory at this refuge point should in addition to the standard hematological and urinalysis services be built to house small laboratory animals, guinea pigs, rats, etc., for testing in the event of a biological warfare or standardization in the event of an atomic attack. Equipment here will be listed in the appendix.



M. D.

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